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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,796	07/10/2003	Timothy P. Gibson	H0004400	1971

128 7590 07/21/2008

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EXAMINER	
VLAHOS, SOPHIA	

ART UNIT	PAPER NUMBER
2611	

MAIL DATE	DELIVERY MODE
07/21/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/616,796	GIBSON ET AL.	
	Examiner	Art Unit	
	SOPHIA VLAHOS	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 May 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9,11-16,18,19,21-24,26-54,57- 60* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9,11-16,18,19,21-24,26-54 and 57-60* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments received on 5/05/08 with respect to the rejection of independent claims 1, 18, 29, 34, 43, 46, 53, 57 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-9, 11-16,18-19, 21-24, 26-27, 34-54,57-60 are rejected under 35 U.S.C. 103(a) as obvious over Kaminski et al., (U.S. 6,678,512) in view of Phillips et al. (U.S. 5,859,878) and Abbey (U.S. 6,151,354).

With respect to claim 1 Kaminski et al., disclose: a front-end circuit operable to receive a plurality of radio signals transmitted across a frequency band and operable to generate an analog signal simultaneously carrying a plurality of channels within said frequency band (Fig. 3, see antenna 12a, filter 20a, amplifier 52a, frequency band 824-849MHz, see column 5, lines 40-47, see the frequency channels (simultaneously carried) within specified frequency range, received by front-end, column 5, lines 51-56); an analog to digital converter coupled to said front-end circuit (Fig. 3, A/D block 24), said analog to digital converter operable to convert said analog signal to a digital signal

simultaneously carrying said plurality of channels within said frequency band (column 5, lines 62-65, column 6, lines 17-21, where the A/D receives the signals (channels) in cellular band and PCS band (see combiner shown in Fig. 3) and converts these to digital); and a digital processing system coupled to said analog to digital converter (Fig. 3, block 26, DSP), said digital processing system operable to receive said digital signal and generate output signals corresponding to a plurality of channels within said frequency band (column 4, lines 66-67 , column 5, lines 1-10, DSP retrieves digital signals from the different channels) by performing digital signal processing (and generates at least one output signal see Fig. 3 arrow out of DSP block)).

Kaminski et al. do not expressly teach: by utilizing a plurality of aviation specific modulation formats and which correspond to a plurality of aviation-specific radio channels and aviation-specific functions, and substantially simultaneously generate a plurality of aviation-specific output signals corresponding to a plurality of channels within said frequency band.

In the same field of endeavor (wireless multiband receivers), Phillips et al. disclose: by utilizing a plurality of aviation specific modulation formats and which correspond to a plurality of aviation-specific radio channels and aviation-specific functions (see column 1, lines 25 through column 2, lines 1-64, where a frequency band from approximately 2-2000 MHz (see also column 5, lines 16-20) contains CNI functions (these are aviation-specific functions see the ones listed in Table 1) for the different channels see Table 1 (where VHF FM (channel) is used for example for

communication, the Glidescope in the UHF band see also column 2, lines 21-24, 80-56).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the system of Kaminski et al. based on the teachings of Phillips et al. so that it processes aviation type RF signals (CNI signals) that are used by commercial and military applications and use a single A/D converter (Kaminski et al. column 2, lines 55-58).

In the same field of endeavor, Abbey teaches substantially simultaneously generate a plurality of aviation-type output signals corresponding to a plurality of channels within said frequency band (see Fig. 1. receiver 10, receives signal(s) from aircraft 16 see column 4, lines 29-45, see that the multi-band radio can be used in helicopter applications, Fig. 3, 4 show details of the multi-mode multi-band transceiver, for simultaneous processing of received signals see column 4, lines 39-40, see the DSP processor 40 shown in Fig. 4, that has parallel processors, see column 7, lines 48-52).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify the system of Kaminski et al. based on the teachings of Abbey to substantially simultaneously generate the plurality of aviation-specific output signals corresponding to a plurality of channels within said frequency band, so that aviation-specific functions (such as an altimeter, glidescope signals) are simultaneously processed and detected since these signals are of importance to commercial/military

fast-responding CNI receivers (Abbey, column 3, lines 46-57,Phillips et al. column 1, lines 39-67).

Claim 60 is rejected based on a rationale similar to the on used to reject claim 1above.

With respect to claim 5, Kaminski et al., disclose: wherein said front-end circuit comprises an antenna circuit operable to receive said radio signals (Fig. 3, see antenna 12a).

With respect to claim 6, Kaminski et al., disclose: wherein said front-end receiver further comprises an amplifier circuit operable to amplify said received radio signals (Fig. 3, LNA, block 52a).

With respect to claims 7, 8 Kaminski et al., disclose: wherein said front-end circuit further comprises a filter circuit operable to filter said received radio signals (Fig. 3, filter 20a, bandpass filter, column 5, lines 54-56).

With respect to claim 9, Kaminski et al do not expressly teach: wherein said front-end circuit further comprises an intermediate frequency mixing circuit operable to translate said received signals to an intermediate frequency band.

However, Phillips et al. disclose: wherein said front-end circuit further comprises an intermediate frequency conversion circuit operable to translate received signals to an intermediate frequency band (column 8, lines 36-38),

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the system of Kaminski et al., based on the teachings of Phillips et al. so that conversion to IF takes place (and frequency conversion uses frequency mixer see column 2, Phillips lines 38-42) so that the processing components after the frequency conversion to IF function at an IF frequency and not wideband frequencies).

With respect to claim 11, Kaminski et al., further discloses: wherein said digital processing signal further comprises a digital down converter operable to select said at least one of channels within said frequency band (column 5, lines 1-10, where tuning to respective frequencies within the DSP corresponds to the function of the claimed downconverter); wherein said digital down converter selects at least one of said channels according to configurable channel selection parameters (see column 7, lines 57-64, software programmable receiver, and column 5, lines 1-8,where digital detection, decimation, tuning are configurable channel selection parameters).

With respect to claims 12-16 see above rejection of claim 11 (where the channel decoding parameters, see use of digital detectors and channel selection, column 5, lines 1-8 see also column 7, lines 57-65).

With respect to claim 34, Kaminski et al., disclose: providing a radio receiver comprising: one or more front-end circuits (Fig. 3, see at least two front-end circuits each comprising antenna, filter and LNA); one or more analog to digital converters

coupled to said one or more front-end circuits (Fig.3, A/D 24, coupled to front-end circuit); and a digital processing system coupled to said one or more analog to digital converters (Fig. 3, DSP), said digital processing system comprising :a digital down converter (part of DSP and therefore coupled to it, see column 4, lines 66-67, column 5, lines 1-9); and a digital signal processor coupled to said digital down converter (DSP mentioned above, the tuning to respective frequencies); receiving at a plurality of the one or more front-end circuits a plurality of radio signals transmitted across a frequency band (Fig. 3, see signals to combiner 56, the plurality of signals within cellular and PCS bands, column 5, lines 40-51, 63-67) , wherein said radio signals received by any one of said front-end circuits are within a different frequency band than said radio signals received by the other of said front-end circuits (Fig. 3, see different frequency bands, cellular band and PCS band); generating an analog signal from said received radio signals, said analog signal simultaneously carrying a plurality of channels within said frequency band (column 5, lines 62-65); converting said analog signal to a digital signal simultaneously carrying said plurality of channels within said frequency band to thereby digitize said plurality of channels within said frequency band (Fig. 3, A/D converter 24, column 6, lines 18-25); and generating a plurality of output signals corresponding to a plurality of said digitized channels within said frequency band (Fig. 3, DSP block 26. column 4, lines 66-67, column 5, lines 1-9, see retrieval and processing of digital signals (the replica cellular and PCM bands)).

Kaminski et al. do not expressly teach: by utilizing a plurality of aviation-specific modulation formats and which correspond to a plurality of aviation-specific radio

channels and aviation-specific functions; substantially simultaneously generating a plurality of aviation-specific output signals corresponding to a plurality of said digitized channels within said frequency bands.

In the same field of endeavor (wireless multiband receivers), Phillips et al. disclose: by utilizing a plurality of aviation specific modulation formats and which correspond to a plurality of aviation-specific radio channels and aviation-specific functions (see column 1, lines 25 through column 2, lines 1-64, where a frequency band from approximately 2-2000 MHz (see also column 5, lines 16-20) contains CNI functions (these are aviation-specific functions see the ones listed in Table 1) for the different channels see Table 1 (where VHF FM (channel) is used for example for communication, the Glidescope in the UHF band see also column 2, lines 21-24, 80-56).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the system of Kaminski et al. based on the teachings of Phillips et al. so that it processes aviation type RF signals (CNI signals) that are used by commercial and military applications and use a single A/D converter (Kaminski et al. column 2, lines 55-58).

In the same field of endeavor, Abbey teaches substantially simultaneously generating a plurality of aviation-type output signals corresponding to a plurality of digitized channels within said frequency band (see Fig. 1. receiver 10, receives signal(s) from aircraft 16 see column 4, lines 29-45, see that the multi-band radio can be used in

helicopter applications, Fig. 3, 4 show details of the multi-mode multi-band transceiver, for simultaneous processing of received signals see column 4, lines 39-40, see the DSP processor 40 shown in Fig. 4, that has parallel processors, see column 7, lines 48-52, Fig. 2 also shows A/D conversion prior to dsp processing).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to modify the system of Kaminski et al. based on the teachings of Abbey so that the step of substantially simultaneously generating the plurality of aviation-specific output signals corresponding to a plurality of channels within said frequency band takes place, so that aviation-specific functions (such as an altimeter, glidescope signals) are simultaneously processed and detected since these signals are of importance to commercial/military fast-responding CNI receivers (Abbey, column 3, lines 46-57,Phillips et al. column 1, lines 39-67).

With respect to claims 35-38 see above rejection of claims 6-7, 9 , 14-15 respectively.

With respect to claim 43, see above rejection of claim 34.

With respect to claims 2,3, the limitations of these claims are not expressly taught by Kamiski et al., However, in the same field of endeavor, wireless communications, Phillips et. al., disclose: wherein said digital processing system

generates a single output signal comprising a time-domain multiplexed serial data link multiplexed serial data link (see Fig. 8B, (coupled to the system of 8A) where a serial interface is used to supply signals to the computer, see column 7, lines 47-52, and see Fig. 6, shows TDM processing at the receiver, that results into TDM outputs). ; further comprising a controller coupled to said digital processing system, said controller operable to receive said time-domain multiplexed serial data link and generate a plurality of signals to a plurality of end devices (Fig. 12B, line transceiver and system bus, supplying serial data to plurality of end devices in computer, column 16, lines 14-17, uart (serial communication), and see column 15, lines 50-56).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the system of Kaminski et al., based on the teachings of Phillips et. al., to achieve high-speed transfer of data (TDM serial data) and supply data to a plurality of external users (intercom).

Claim 4 is rejected based on a rationale similar to the one used to reject claim 3 above.

With respect to claims 39-40, 41-42 see above rejection of claims 2-3 (time-domain multiplexed signals correspond to a plurality of output signals).

With respect to claims 44-45 see above rejection of claims 2-3 above.

With respect to claim 46 see above rejection of claim of claim 43.

With respect to claims 47-49, 50-51, 52 see above rejection of claims 46, and 2-3

With respect to claims 53-54 these claims are rejected based on a rationale similar to the one used to reject claims 49, 52.

Wit respect to claims 57-59 these claims are rejected based on a rationale similar to the one used to reject claims 53, 37, 38 respectively.

With respect to claims 18 -19, 21-24, 26-27 see above rejection of claim 34 (where the at least one front-end circuit of claim 18 corresponds to the 2 front-end circuit groups of Fig. 3 of Kaminski et al.) for claims (18-19, 21). See rejection of claims 35, 36, 37,(for claims 22,23, 24) and 38 for claims 26-27.

4. Claim 28 is rejected under 35 U.S.C. 103(a) as obvious over Kaminski et al., (U.S. 6,678,512) in view of Phillips et al. (U.S. 5,859,878) and Abbey (U.S. 6,151,354) as applied to claim 18 above and further in view of Luneau (U.S. 6,914,950).

With respect to claim 28, all of the limitations of claim 28 are rejected above in claim 18 but neither Kaminski et al. nor Phillips et al. or Abbey expressly teach: and a plurality of corresponding analog to digital converters, wherein said digital processing system is operable to receive a plurality of digital signals from said analog to digital

converters and generate at least one output signal corresponding to at least one of said channels within said frequency and of at least one if said front-end circuits of at least one of said front-end circuit groups.

In the same field of endeavor, Luneau discloses: a plurality of front-end circuit groups and a plurality of corresponding analog to digital converters (see Fig. 2, each of the RF front-end units function on different frequency ranges see column 3, lines 65-67 through column 4, lines 1-6) wherein a digital processing system (Fig. 2 see components after ADC blocks, perform down conversion and demodulation of the signals from each RF unit, column 4, lines 7-17, column 7, lines 37-60) is operable to receive a plurality of digital signals from said analog to digital converters and generate at least one output signal corresponding to at least one of channels within a frequency band of front-end circuits of at least one of said front-end circuit groups (see column 3, lines 4-20, see monitoring of at least one channel, column 4, lines 12-17).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to modify the system of Kaminski et al. based on the teachings of Luneau to use a plurality of ADCs so that (the rationale being) the multiplexed or combined signals out of block 56 Fig.3 of Kaminski et al. are processed in parallel by multiple ADCs instead of a single ADC functioning at a higher speed 400Ms/sec to accommodate signals from the wide frequency range. Therefore to a person of ordinary skill in the art the rationale to use a plurality of ADCs (instead of a single one) is the tradeoff between the available processing time, space, and power consumption of the system.

5. Claims 29-33 are rejected under 35 U.S.C. 103(a) as obvious over Kaminski et al., (U.S. 6,678,512) in view of Phillips et al. (U.S. 5,859,878) and Abbey (U.S. 6,151,354) and Luneau (U.S. 6,914,950).

With respect to claims 29,33 claims 29,33 are rejected based on rationale similar to the one used to reject claim 28.

Claims 30-32 are rejected based on a rationale similar to the one used to reject claims 6,7,9 above.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SOPHIA VLAHOS whose telephone number is (571)272-5507. The examiner can normally be reached on MTWRF 8:30-17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammed Ghayour can be reached on 571 272 3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SOPHIA VLAHOS/
Examiner, Art Unit 2611
7/8/2008

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